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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,551	03/09/2001	Scott E. Harrow	10205.030	7317

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EXAMINER
SINGH, RAMNANDAN P

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/803,551	HARROW ET AL.	
	Examiner	Art Unit	
	Dr. Ramnandan Singh	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The specification recites "Fig. **1**" on page 7, lines 12-13. This is incorrect. Replace this "Fig. 1" by "Fig. **2**".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano [US 5,313,498] in view of McCaslin et al [US 5,764,753].

Regarding claim 1, Sano teaches using a comparison of a receive signal level (S_r) with a transmit signal level (S_t) to determine whether a near-end party or a far-end party is speaking in a digital telecommunications system [col. 6, lines 10-22]. This determination is needed in half-duplex mode to correctly apply echo suppression to only one path (the receive path or transmit path) which is open at any time.

However, Sano does not teach expressly comparing either electrical signal to a threshold and converting a plurality of its samples into a count and comparing the count to a threshold.

McCaslin et al teaches using a receive signal, $R_{in}(k)$, wherein at each sample time, the absolute value of the raw receive signal is compared to its background noise power estimate [col. 8, lines 52-54; col. Col. 3, lines 2-30] for speech detection; and converting a plurality of its samples into a count (120), and comparing the count to a count threshold (122) [Fig. 3; col. 9, lines 14-28; Fig. 5; col. 10, lines 50-67; col. 11, lines 1-23; col. 7, lines 3-10].

Sano and McCaslin et al are analogous art because they are from a similar problem solving area, viz. , half-duplex telephonic communications.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the counter and the counter threshold of McCaslin et al to the Sano's comparator so as to compensate for a susceptibility of noise or echo effects [McCaslin et al; col. 2, lines 62-67] and provide an accurate half-duplex communications over telephones.

Regarding claim 3, McCaslin et al teaches a binary indication of the results of the comparison as to whether utterance (i.e. speech) is present or absent in a signal [Fig. 5, (elements 166, 168, 170); col. 11, lines 11-23].

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sano and McCaslin et al as applied to claim 1 above, and further in view of Lewis et al [US 5,684,861].

Regarding claim 2, the combination of Sano and McCaslin et al does not teach expressly applying an analog comparator to compare the two signals.

Lewis et al discloses an analog comparator (14) that can compare two analog input signals; wherein the comparator generates a binary output signal having a first state and a second state [col. 7, lines 54-59]. The comparator's digital output signal is maintained in the first state when the first input is less than the second input, and maintained in the second state when the first input is greater than or equal to the second input [col. 15, lines 27-37].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the analog comparator of Lewis et al to the combination of Sano and McCaslin et al and produce binary samples.

5. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sano and McCaslin et al as applied to claim 1 above, and further in view of Miller [US 4,501,003].

Regarding claims 4-6, the combination of Sano and McCaslin et al teaches a logic circuit having a function block to read the value in the accumulator with increments and decrements to make a binary decision using a count threshold [McCaslin et al; Figs. 7, 7a; element 204; col. 8, lines 45-51; col. 9, lines 14-28; col. 10, lines 63-67; col. 11, lines 1-10; col. 13, lines 11-67; col. 14, lines 1-15].

The combination of Sano and McCaslin et al does not teach expressly using two or more accumulators.

Miller teaches using one or more accumulators 3206's to produce binary signals. Basically, multiple accumulators are needed whenever multiple indicative output signals are requested [Fig. 96; col. 97, lines 35-42]. Therefore, use of multiple accumulators 3206, 4160, ...for generating indicative signals are well-known in the art [Miller; Figs. 3-4, 6, 11, 19, 84, 92, 97]. As a result, an identical second accumulator may be added to the McCaslin et al system to verify the accuracy of the first indicative result if it is desired.

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller [US 4,501,003] in view of Reesor et al [US 4,796,287].

Regarding claim 7-8, Miller teaches accumulators 3206 and 4160 [Fig. 96] and multiplexers 3501 and 3506 with a boundary control [Fig. 116] having counters and logic [col. 42, lines 39-61; col. 44, lines 22-68; col. 45, lines 1-13; col. 48, lines 22-67; 49, lines 1-12; col. 49, lines 33-68; col. 96, lines 49-68; col. 97, lines 1-4; col. 97, lines 35-42; col. 100, lines 6-27; col. 105, lines 19-32; col. 106, lines 1-52; col. 118, lines 3-17; Abstract].

Miller does not teach expressly logic for preventing roll-over and roll-under.

Reesor et al teaches an accumulator 201 under the control of timing and control circuitry 202 [Figs. 2-5]. It may be noted that "roll-up" and "roll-under" are **inherent attributes** of an accumulator to handle input data for counts within a defined range of values [col. 24, lines 36-44; coll. 24, lines 62-65] using increments/decrements. Further, a digital switching network is well-known in the art. The digital switching network 25 effectively multiplexes the digital signal processor 14 between a plurality of local loud-speaking telephones and outside lines [col. 6, lines 46-56].

Miller and Reesor et al are analogous art because they are from a similar problem solving area, viz. , accumulators in telephonic communications.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the up-down counter and logic of Reesor et al with the Miller's system so as to enable a digital loudspeaking telephone for carrying out a normal conversation between the two parties [Reesor et al; col. 1, lines 6-15].

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kotzur et al [US 6,389,480 B1] shows an arbitration system having a receive arbitration count and a transmit arbitration count.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-0377.

Dr. Ramnandan Singh
Examiner
Art Unit 2644

October 21, 2002

FAN TSANG
SUPERVISORY PATENT EXAMINER
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